

Notice of Allowability

Application No.

10/716,745

Examiner

Tuan N. Nguyen

Applicant(s)

NGUYEN, THE-LINH

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/02/2004.
2. ☒ The allowed claim(s) is/are 1,2, 4-8, 10-13, 15-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 11/02/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 12/06/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below, to the amended claims 1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14 should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview on November 6, 2005 with Mr. Pete Malen (Attorney for Applicant, Reg. No. 45,576).

1. **(Currently amended)** A method for compensating transmission line loss of a laser drive signal, comprising:

providing a transmission line between a laser driver circuit and a laser diode, the transmission line having coupled thereto a set of frequency dependent impedance circuits connected in series, each frequency dependent impedance circuit comprising a resistor, an inductor and a capacitor connected in parallel, and each frequency dependent impedance circuit is configured to produce a desired impedance at the corresponding frequency, the set of frequency dependent impedance circuits ~~bias impedance circuits~~ corresponding to a predefined set of operating frequencies of the laser drive signal, wherein each ~~[[bias]]~~ frequency dependent impedance circuit of the set of ~~[[bias]]~~ frequency dependent impedance circuits is configured to generate a frequency response that compensates for the laser drive signal loss of the transmission line at a distinct corresponding operating frequency, and wherein; and

driving the laser drive signal from the laser driver circuit to the laser diode through the transmission line, the laser drive signal operating within a range of frequencies associated with the predefined set of operating frequencies.

3. **(Canceled)**

4. **(Currently amended)** The method of claim 1, wherein the set of ~~[[bias]]~~ frequency dependent impedance circuits is configured to produce a substantially zero impedance when the operating

frequency is approximately zero and is further configured to produce a predetermined non-zero impedance at each operating frequency of a predetermined set of operating frequencies.

5. **(Currently amended)** The method of claim ~~[[3]]~~ 1, wherein the operating frequency of each respective frequency dependent impedance circuit is a resonance frequency of the respective frequency dependent impedance circuit.

6. **(Currently amended)** The method of claim ~~[[3]]~~ 1, wherein the resistor of each respective frequency dependent impedance circuit is tuned to optimize the efficiency of the laser driver circuit and the quality of the laser drive signal in accordance with a set of predetermined system design criteria.

7. **(Currently amended)** A circuit for compensating transmission line loss of a laser drive signal, comprising:

a laser driver circuit;

a laser diode;

a transmission line ~~[[for]]~~ connecting the laser driver circuit to the laser diode; and

a set of frequency dependent impedance circuits connected in series, each frequency dependent impedance circuit comprising a resistor, an inductor and a capacitor connected in parallel, and each frequency dependent impedance circuit is configured to produce a desired impedance at the corresponding frequency, the set of frequency dependent impedance circuits, the set of ~~[[bias]]~~ frequency dependent impedance circuits having a first terminal coupled to a power supply and a second terminal coupled to the transmission line, wherein each ~~[[bias]]~~ frequency dependent impedance circuit of the set of ~~[[bias]]~~ frequency dependent impedance circuits is configured to generate a frequency response that compensates for laser drive signal loss of the transmission line at a distinct corresponding operating frequency.

9. **(Canceled)**

10. **(Currently amended)** The circuit of claim 7, wherein the set of ~~[[bias]]~~ frequency dependent impedance circuits is configured to produce a substantially zero impedance when the operating

frequency is approximately zero and is further configured to produce a predetermined non-zero impedance at each operating frequency of a predetermined set of operating frequencies.

11. **(Currently amended)** The circuit of claim [[9]] 7, wherein the operating frequency of each respective frequency dependent impedance circuit is a resonance frequency of the respective frequency dependent impedance circuit.

12. **(Currently amended)** The circuit of claim [[9]] 7, wherein the resistor of each respective frequency dependent impedance circuit is tuned to optimize the efficiency of the laser driver circuit and the quality of the laser drive signal in accordance with a set of predetermined system design criteria.

13. **(Currently amended)** A method for operating a laser driver circuit, wherein the laser driver circuit drives a laser drive signal to a laser diode through a transmission line, comprising:

providing a laser driver circuit that comprises:

a differential pair of transistors having each drain terminal coupled to a power supply through a set of source impedance circuits and gate terminals coupled to a pair of differential input signals providing a set of source impedance circuits for the laser driver circuit, wherein the set of source impedance circuits produces a substantially zero impedance when the operating frequency is approximately zero and produces a predetermined non-zero impedance at each operating frequency of a predefined set of operating frequencies, and wherein the differential input signals operate within a range of frequencies associated with the predefined set of operating frequencies;

a current source coupled between source terminals of the differential pair of transistors and a circuit ground; and

a pair of output ports coupled to the drain terminals of the differential pair of transistors; and

driving the laser driver circuit with an input signal, the input signal operating within a range of frequencies associated with the predefined set of operating frequencies.

14. **(Canceled)**

REASON FOR ALLOWANCE

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance, with respect to claims 1, 7, 13, and 19, the references of the record fail to teach or suggest a circuit for compensating transmission line loss of a laser drive signal and the method compensating thereof:

Claim 1, 7:

The circuit comprising a laser driver circuit, a laser diode, a transmission line connecting the laser driver circuit to the laser diode, and a set of frequency dependent impedance circuits connected in series, each frequency dependent impedance circuit comprising a resistor, an inductor and a capacitor connected in parallel, and each frequency dependent impedance circuit is configured to produce a desired impedance at the corresponding frequency, the set of frequency dependent impedance circuits, having a first terminal coupled to a power supply and a second terminal coupled to the transmission line, wherein each frequency dependent impedance circuit of the set of frequency dependent impedance circuits generates a frequency response that compensates for laser drive signal loss of the transmission line at a distinct corresponding operating frequency.

Claim 13, 19:

A laser driver circuit drives signal to a laser diode through a transmission line, comprising: a differential pair of transistors having each drain terminal coupled to a power supply through a set of source impedance circuits and gate terminals coupled to a pair of differential input signals, a current source coupled between source terminals of the differential pair of transistors and a circuit ground; and a pair of output ports coupled to the drain terminals of the differential pair of transistors; and driving the laser driver circuit with an input signal, the input signal operating within a range of frequencies associated with the predefined set of operating frequencies, wherein the set of source impedance circuits produces a substantially zero impedance when the operating frequency is approximately zero and produces a predetermined non-zero impedance at each operating frequency of a predefined set of operating frequencies,

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and wherein the differential input signals operate within a range of frequencies associated with the predefined set of operating frequencies.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

